

In the Specification

Please replace the paragraph at page 6, lines 4-5 with the following amended paragraph:

Figure 1B shows an expanded view of a rotor of a compressor incorporated with the embodiment shown in Figure 1A.

Please replace the paragraph at page 11, line 27 through page 12, line 10 with the following amended paragraph:

In a specific embodiment, the subject invention can incorporate compressor 515, shown in Figure 1A. Figure 6 shows an exploded view of certain portions of compressor 515 shown in Figure 1B. Compressor 515 can utilize a positive displacement means to compress the refrigerant vapor entering the compressor. A positive displacement means can start with a certain volume of refrigerant vapor and reduce the volume by a set amount resulting in compressed refrigerant vapor. The amount of volume change can be a function of the geometry of the positive displacement means. Valves and upstream conditions typically govern the pressure at which the vapor leaves the compressor. The positive displacement means can be, for example, a piston style, a sliding vane, a screw, a scroll, or a rotary lobed type. In a specific embodiment, compressor 515 can incorporate a rotary lobed type positive displacement means. An example of this type of compressor is shown in Figures 1 and 6, and can be referred to as a rotary lobed compressor. The purpose of the compressor is to intake low pressure, low temperature refrigerant vapor and discharge high temperature high pressure vapor to the condenser.

Please replace the paragraph at page 14, lines 7-28 with the following amended paragraph:

To increase the efficiency and life of the compressor, referring to Figure 1B, spring loaded face seals 16 and/or spring loaded tip seals 20 can be installed on the rotor. The face seals 16 and tip seals 20, as shown in Figure 1B, can be designed to minimize leakage

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between the chambers during the rotary motion of the rotor. In a specific embodiment, the seals can be made of a low friction material to minimize wear and friction losses. In a further specific embodiment, an engineered plastic material such as PEEK, TEFLON, NYLON, or DELRIN can be used. Other materials with similar characteristics can also be used. The tip seals and face seals are spring loaded to insure that the plastic seals stay in contact with the metal surfaces of the compressor housing. In a specific embodiment, the springs used are 2.4 mm in diameter, 6.2 mm long, have a spring stiffness constant of 2.2 lbs per inch, and a pitch of 35 coils per inch. Preferably, at least one spring is used on each of the tip seals. Multiple springs can be used on the face seal in order to provide an even spring loading force. In further embodiments, the spring force can be produced by other means such as wave springs, elastic rubbers, or gas filled balls. Preferably, the tip and face seals are fabricated so that a slip fit into the rotor can be maintained. In a specific embodiment, a slip fit dimensional tolerance of 8 micron is used.

Please replace the paragraph at page 16, lines 7-26 with the following amended paragraph:

The motor 513, as shown in Figure 1A, can be used to power the drive shaft 514. In a specific embodiment, motor 513 can be a permanent magnetic synchronous motor. Other mechanical devices capable of producing shaft power can also be used to power the subject compressor, including, for example, combustion engines, wind, or paddlewheels. In a specific embodiment, the motor can be designed for long service life and can operate at much higher efficiencies than standard motors. The motor design can be a compact unit specially suited for this type of application. The motor can deliver a high power density and operate at variable speeds through a motor controller 23. The incorporation of motor controller 23 can allow the motor to change the amount of compression, depending on the cooling load. Standard vapor compression cycles typically turn the compressor on and off in order to adjust to the net cooling requirements of the cooling load. The turning of the compressor on and off can reduce the efficiency of the cooling system, as the start up interval of a motor can be extremely inefficient. Accordingly, the use of a control feature,

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in a specific embodiment of the subject invention, can allow the variation of the speed of the motor, rather than intermittent operation of the motor, to adjust the cooling system to the net cooling requirement of the cooling load so as to significantly improve the energy efficiency of the cycle. In a specific embodiment, the motor can provide 41 Watts of shaft power, provide 36 oz-in torque, weigh approximately 22 ounces, have a diameter of 2.25 inches, and have a maximum efficiency of 82%.

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